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ABSTRACT

Developing more effective conceptions of the high school may require radically reducing its size. In today's big high schools, size ensures that control of students is a primary concern and prevents the development of a collegial atmosphere among teachers. Although research provides ample evidence of the superior social climates of small informal high schools, these schools have been presumed to have inevitable high costs and program limitations. Such deficits are inevitable only when stuck in the big bureaucracy model of education. When a school is small enough, students can be trusted with responsibility, control is not a central issue, an individualized program makes sense, and every student and teacher has a say in how the school is run. At Jefferson County (Colorado) Open High School, about 240 students control their own education by designing individual education plans that meet the school's 24 graduation expectations and 6 major experiences ("passages" to adulthood). Personal advisors and advisory groups provide support. Teachers divide their time among teaching, advising, and doing school planning and paperwork. Weekly all-school meetings are run by students and promulgate all rules. Extended field trips provide "passages" experiences. The school operates on the same funding schedule as large traditional high schools in the same county because much less overhead goes to administrators, teaching specialists, and support personnel. The leap from the bureaucratic industrial model of schooling to smaller, more personal schools is a paradigm shift that will require policymaker tolerance and support. (SV)

Small Is Too Big: Achieving a Critical Anti-Mass in the High School

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Introduction

Big high schools no longer work for today's youth. Adolescents and the society in which they live have changed dramatically since the institution was conceived. Two lists of Fullerton, California's "nonscholastic concerns" about the high school—one compiled in 1940, the other in 1982—encapsulate these changes.[1] In 1940, when the concept of the modern American high school had already reached a certain maturity, the concerns ranged from talking and chewing gum to wearing improper clothing and not putting paper in wastebaskets. In 1982, the nonscholastic concerns included drug and alcohol abuse, pregnancy, suicide, rape, and robbery. Vandalism, assault, arson, bombings, murder, gang warfare, and venereal disease were also listed. American high school programs have been regularly updated and fine-tuned in response to these ever-changing conditions, but the fundamental premises upon which they were founded remain intact, even though these premises are no longer valid.

James Coleman (1972) described the shifts that have occurred in our society in the century and a half since the schooling model that we still employ was devised. Early nineteenth-century agrarian America was, for the young, action rich but information poor. Adolescents on farms often functioned much as responsible adults. But information, even in the form of printed matter, was scarce. *Telling* children about a world that they could not know through any other means was a necessary teaching activity. A boy in rural Illinois in the 1870s could sit awestruck, "open-mouthed and incredulous," as his teacher mentioned in passing that he had been on a train that had traveled 60 miles an hour. Since then, our 180-degree transformation into an information-rich, activity-poor society has not been matched by a commensurate change in our schools:

The school of the future must focus on those activities that in the past have largely been accomplished outside school: first, productive action with responsibilities that affect the welfare of others, to develop the child's ability to function as a responsible and productive adult; and second, the development of strategies for making use of the information richness and the information processing capabilities of the environment.

> The activities that have been central to the school's functioning, such as expansion of students' factual knowledge and cognitive skills, must come to play an ancillary role. It is not clear just what the shape of future schools will be, but they must not have as their primary goal the teaching of children. Anomalous as this principle may seem, it is the key to successful educational institutions of the future. The failure to recognize this principle is a major source of malaise in present schools (p. 75).

More recently (1987), Coleman has described the growing dysfunction of high schools stemming from a second founding premise. When the high school was created, he points out, the relationship between the old and the young was very different than it is today. Authority then was much more closely linked to financial dependence. As long as a child lived at home, he or she was expected to obey the head of the household. Accordingly, the schools that were created for the youth of that era expected youth to *mind those in authority*. (Fullerton's 1940 list of concerns, for example, is a catalog of ways for kids not to mind.) Gradually over the past few decades, that fundamental relationship between the older and the younger generations has changed. In most families in the United States today, a shift in the relationship occurs around age 14, and in some families it occurs much earlier. As today's children mature,

minding adults begins to be replaced in most families by a form of negotiation.[2] Meanwhile, today's youth still attend high schools that operate on the premise that adolescents will mind.

Most high schools are far too large to operate on a negotiation model, even if they chose to try. Negotiation does occur in high schools, but it is far more likely to occur at the classroom level where teachers, beleaguered by students who won't mind, resort to tacit social contracts (Sizer, 1984; Powell, Farrar, & Cohen, 1985; Sedlack, et al., 1986). Such contracts are the survival mechanisms of an institution in the middle stages of environmental collapse. Constructive forms of individual negotiation seldom occur at the school level because they violate a founding premise of the institution: Kids are expected to mind adults. Perhaps most evident is the degree to which control and disciplinary concerns often dominate the criteria by which the performances of secondary school administrators are reviewed. A school designed in an era when adolescents were treated as children has great difficulty, today, treating them as adults.

If big high schools no longer work for students, they also no longer work for teachers. As we have abandoned small, personal schools, two related conditions have evolved. The role of administrators has increasingly gained prominence and we have gradually wrested control of schools from teachers. The degree to which support for teachers has waned is evident, not in what administrators and school board members say about teachers, but in what they do about them:

> [T]here are many people in policy-making roles and administrative positions who mouth pat phrases about the importance of teachers and teaching—and then proceed to undercut teachers by creating conditions of work that blunt their enthusiasm and stifle their creativity. [Such actions constitute] a kind of "neutering" of teachers. Neutered teachers lack physical strength and energy, enthusiasm for their work, and motivation. (Frymier, 1987, p. 9)

Susan Moore Johnson (1990) summarizes the low levels of collegiality experienced by even the effective teachers that she studied:

> In the ideal world of schooling teachers would be true colleagues working together, debating about goals and purposes, coordinating lessons, observing and critiquing each other's work, sharing successes and offering solace, with the triumphs of their collective efforts far exceeding the summed accomplishments of their solitary struggles. The real world of schools is usually depicted very differently, with teachers sequestered in classrooms, encountering peers only on entering or leaving the building. Engaged in parallel piecework, they devise curricula on their own, ignoring the plans and practices of their counterparts in other classrooms or grades; when it occurs, conversation offers a diversion from teaching rather than the occasion for its deliberation—travel plans rather than lesson plans are said to dominate faculty-room talk. Although such portrayals are often exaggerated, they contain more truth than most of us would like to believe. (p. 148)

A middle school teacher told Johnson, "People want to have faculty meetings, would like to sit down and be able to discuss educational issues, not drivel. We have few opportunities to do that" (p. 185). Yet, only seven of Johnson's 75 teachers in public schools believed that they exerted ongoing influence over important schoolwide matters. The *size* of most high schools is the primary barrier to the development of a truly collegial atmosphere.

Achieving a Critical Anti-Mass

The research on the effects of school size displays an impressive consistency. The literature demonstrates that students learn at least as much in small high schools as they do in large ones, that students in small high schools are less likely to drop out and that these schools cost little more to operate. Fowler's study of New Jersey's high schools (1989) and its accompanying review of the literature is a relatively recent reconfirmation. He concluded that

> public school size and district size both influence schooling outcomes [in favor of small size], and although other evidence of this relationship has accumulated, policy makers seem to ignore the finding and its significance (p. 21).

Let me make two points about this unusually consistent research record. These favorable comparisons were achieved in small high schools that typically function under the handicap of attempting to emulate a big-school model, and these results were achieved in schools that I believe are still too big to enjoy the essential advantages available only to very small high schools.

My research on very small public high schools convinces me that the single change that would most enable the development of new, more effective conceptions of the high schools is to reduce their size radically. Agreement is now widespread that the high school has grown too big. Indeed, 500 students seems to be mentioned often as a target in down-sizing proposals. But that number makes sense only if one's intention is to continue to conduct business as usual: a routine of textbook-dominated classes that are designed to dispense a curriculum that emphasizes the transmission of information from the old to the young via group instruction delivered within the confines of the school building. Mary Futrell, former president of the NEA, has aptly called this concept the two by four by six school, an education confined by the two covers of the textbook, the four walls of the classroom, and the six hours of the school day. This conception of *small enough* is at least as old as James Conant's dictum (1959) that a school must have at least 100 students in a graduating class to adequately prepare students for college. His statement was more supportable at a time when group instruction was seen as the only workable model available, when the automobile was just beginning to give teenagers previously unimagined mobility within their communities, and when the technologies of the microcomputer and distance education were wildly improbable fantasies.

The problem with high schools of 500 students is that they still function as big schools. It is in this sense that small is too big. High schools of 500 students still tend to be governed, though to a diminished degree, by the control issues that dominate big high schools. Many students are still anonymous enough to evade personal responsibility for their actions and therefore still cannot be trusted, a fundamental prerequisite of any school that strives to give students more control over their education, to treat them more as adults. Moreover, high schools of even this size still have too many teachers. Giving control of schools back to teachers is central to the gradual improvement of the conditions of teaching, conditions that the Carnegie Task Force on Teaching (1986) termed abysmal.

After looking at dozens of public high schools, both small and large, Jerry Smith and I concluded that, as school size increases, the number of teachers in a school becomes critical long before the number of students does (Gregory & Smith, 1987). All of the teachers in a school need to feel that they play an important role in setting its course, that none of them feels redundant (Barker and Gump, 1964). The number of teachers in a school needs to be reduced to the point where all teachers can sit down and plan the course of the school *as a group*. Much of the group dynamics research sets the maximum size of such work groups at about 12.

A school that does not work for teachers has little chance of working for students. Seymour Sarason's recent, very important book, *The Predictable Failure of Educational Reform* (1990), convincingly makes this point: We need to reconceive schools as being good places for both students *and* teachers. I attribute the limited success of the restructuring movement, well-described by Reigeluth, Norris, and Ryan (1991) and by Smith, et al. (1992), to be due to the

antithetical nature of inclusive models of governance and the size of the schools in which we are attempting to develop them.

This notion of a high school seems strange, even unworkable, but hundreds of public schools function quite successfully on this model. I refer not to small rural schools that more typically struggle to emulate the standard big-school model, but to alternative high schools, almost all of which have student bodies of fewer than 250 students. For several years, Jerry and I contrasted the social climates of these schools, many of which are populated by reputedly tough-to-teach kids, with the social climates of their big high school brethren (Smith, Gregory, & Pugh, 1981a, 1981b; Gregory & Smith, 1983; Smith & Gregory, 1982). We had studied more than 80 high schools, large and small, in more than 20 states before we finally found a small, informal high school with a social climate desperate enough to rank it slightly below the very best large comprehensive high school that we had studied. And we had studied several such schools that were reputed to be among the best in their states.

But even after years of overwhelming evidence of the superior social climates of small, informal high schools, Jerry and I presumed that achieving those climates required the sacrifice of programs, that one could not provide intensely personal, highly supportive conditions for adolescents *and* provide them with rich academic programs. That view changed when we began to encounter a few very small public high schools with programs so rich in variety and flexibility that students were leaving highly reputed, comprehensive high schools to gain access to programs that their former schools *could not offer*.

The *perceived* limitations in the program that small high schools can deliver and their presumed high cost regularly have been cited as justifications for our steady march toward giantism.

The research convincingly stamps both of these views as misconceptions. To understand why, we must imagine schools that are so small that their size becomes not a handicap but an overwhelming advantage.

The concept of critical mass—marshalling sufficient resources to achieve potency for an effort—is a familiar one. Our goal in this case is the opposite: to achieve what, for lack of an available term, I will call a critical anti-mass.[3] The idea is to become a lean enough institution to do the job that today's information society enables and today's teenagers require. We need to create schools in which the minimum unit of instruction is not 25 or even 15 students, but one. We need high schools that allow—indeed require—us to break the two by four by six boundaries of how we think about school. We need to replace schools that are so big that some of them cannot even trust their teachers with schools that are so small that they can trust all of their students—not just an elite that is sequestered in a gifted and talented program—with freedom and responsibility (Gregory, 1990). To accomplish these goals, we need to make the high school so small that only an individualized program makes sense in it, that control is not a central issue and every person—teacher and student alike—can have a say in how the school is run.

The Programmatic Potential of Very Small High Schools

My proposal bears serious consideration only if we can mount programs in small high schools that are at least the equal of those in big schools. Perhaps the most effective way that I can convey, in the limited space of this paper, how different and how effective the academic program in a very small public high school can be is to describe one such public high school. I spent the entire 1987-88 academic year teaching in and conducting research on the Jefferson

County (Colorado) Open High School.[4] The school demonstrated the sort of rich, empowering program that can be delivered to *all* students with the funding currently available to most public schools. The school was very small, with a heterogeneous student body of 238 students. Students freely chose to attend the school, which accepted them on a first come, first served basis regardless of their motivation, ability, or past school history.[5] About ten percent of its students would have been labeled gifted and talented in other schools; about another ten percent were identified as special education students; and about 50 percent bore those characteristics that would lead many to label them as "at-risk." The school gave no grades and emphasized self-evaluation in a highly-personalized program that contained all of the trappings of the most visionary gifted and talented program:

Control of one's education. The Open High School's effort to empower its students was best manifested in the control that students exercised over their own education. During their first weeks in the school, new students began identifying their strengths, weaknesses, and prior accomplishments in relation to the school's 24 Graduation Expectations.[6] They identified past school and life experiences that might satisfy parts of these requirements and designed activities that would satisfy others. All of these deliberations began to take shape in students' first attempts to define their Individual Education Plans (IEPs). Students' weekly schedules intentionally contained considerable unscheduled time for individual work, both in and out of the school.

Personalization. Students did not attempt these activities in isolation. Upon entry into the school each new student was assigned a temporary advisor until he or she could select a permanent one. The student also joined that staff member's advising group, the average size of which was 14. Every Friday morning was set aside as meeting time for advising groups. These

groups were far more than homerooms. They were support systems; they were forums for discussing issues critical to the operation of the school; and they were social groups. Staff members were expected to keep some of their remaining week free to meet individually with their advisees. It would be difficult to envision the school's highly personalized program functioning in the absence of its considerable commitment to advising.

Control of one's teaching. Teachers, too, exercised great control over their schedules, dividing their time roughly equally between teaching classes, meeting their advising responsibilities, and doing the committee work and paperwork of running a school. The staff met every Wednesday morning from 8:00 until 10:30. School started at 9:15. Perhaps the most convincing evidence of the degree to which control was not an issue in the school is that for an hour and 15 minutes every Wednesday, it functioned quite smoothly without teachers.

Learning in the world. The school's graduation requirements also included the completion of six major experiences or Passages that have been described by Maurice Gibbons (1974) as the Walkabout Curriculum. These six steps to adulthood, as students and staff members referred to them, fell in the areas of *Adventure, Career Exploration, Creativity, Global Awareness/Volunteer Service, Logical Inquiry,* and *Practical Skills.*[7] Advisors and fellow students, through an elaborate network of ad hoc committees, helped students formulate their plans for satisfying their Passage experiences. Passages regularly took students into the community, often to other states, and occasionally all over the world.

Having a say in matters. The school operated on the principle of one person, one vote. Weekly all-school meetings were run by students. Any student or staff member could request that an issue become a topic of Governance. Students also formed effective majorities on two

key school committees: Futures, which recommended changes in the curriculum, and Hiring, which reviewed and selected applicants for staff vacancies. All but three of the school's rules were promulgated by Governance. These three exceptions, known as the Three No's, were imposed by adults. The Three No's were no drinking, no drugs, and no sex as a part of any school-related activity.

Trips. During my year there, nineteen extended trips, each heavily subsidized by the school, were taken by groups ranging in size from five to 25 students, each group accompanied by two to five adults. The trips, some longer than two weeks in duration, ranged as far west as California, as far east as the Bahamas, as far north as the Boundary Waters here in Minnesota, and as far south as Mazatlan on the Pacific coast of Mexico. All told, an aggregate of almost 400 students and staff members traveled over 43,000 miles during the year, a total of over 600,000 person/miles. Mounting trips such as these requires effort and conviction. The effort was supplied mainly by the students, who were expected to do much of each trip's planning and preparation. In the process, they became the tight-knit work group that could weather the interpersonal challenges of travelling together for an extended period. The staff's belief that trips are worth the effort was buttressed by the many watershed events—what Wigginton (1975) calls teachable moments—that occurred on them. This paper's length precludes the sharing of many of these anecdotes, but let me share two because they, better than statistics or rhetoric, make the case for experientially-based schooling. Both events occurred in Canyon del Muerto on the fifth day of the Navajo Work Trip, a two-week, 2,500-mile expedition to the Navajo Reservation. The work of the trip was the distribution and planting of 3,000 donated fruit trees, part of the school's continuing effort to replace the thousands of fruit trees that the U.S. Army

destroyed in 1863 in its effort to starve the Navajo off of their tribal lands. The trees also functioned as an entree into the culture of a very private people, a gift that prompted the Navajo, in turn, to give of themselves to these Anglo teenagers.

The day is full of planting fruit trees on farms in the area. Joe Yazzi, a sheepherder with canyon land near our campsite, already has quite an orchard going. It includes some trees that the first Navajo Work Trip planted two years earlier. They are in bloom. The veterans who had been on that trip are elated and Bill Johnson, who has led all three of these trips, almost busts out of his T-shirt with pride. These trees are the first tangible evidence that the efforts of these trips are literally bearing fruit. Joe shares water from his spring with us and we are happy to plant some more trees as compensation. He is over 90 years old, looks 60, and rides a horse as though he's 30. Since the period in which the Spaniards introduced the horse to this region, the Navajo have enjoyed the reputation of being consummate horsemen and Joe's skill in the saddle is evidence that this reputation is well-earned. After the planting, we stand in a tight circle around Joe, resting on our shovels. He shares a little of what life in the canyon is like. Joe's speech is a mixture of English and Navajo and Buddy, a cousin of Vincent's who is acting as our Navajo escort, translates for us. Joe's small house is perhaps 50 yards away. It's a rude structure, about 12 feet square, with walls of tightly-bound sapling trunks. The dwelling seems almost transparent. Its flat roof extends out from its front to form a veranda almost as big as the house. Joe's wife sits silhouetted against the bright sunlight with her hands in her lap in the veranda's deep shade, looking off into the distance. Her clothes are billowy and her hair is drawn tightly back into a bun. The scene has a dignity and wholeness that is little different than it might have been 200 years ago.

Joe tells the kids that a sheep will sometimes find her way up the canyon wall to a spot from which she can't extract herself. Sometimes the herder can't reach the spot and he will shoot her off the canyon wall to reclaim what he can of his investment. At other times, the herder will make the perilous climb to retrieve the marooned animal. The kids listen in rapt silence as Joe tells the story of when, as a young man, he went high up the sheer cliff face after a sheep. He lost his footing and fell. He tells us that he survived the fall by tearing open his large shirt and holding it against the wind as a makeshift parachute. It's an incredible tale but we believe it nonetheless.

As I stand at the edge of the group watching the kids soak up Joe and gazing at Joe's wife in the distance, I consider the many things these kids are learning as they measure themselves against unimagined conditions in a previously unexperienced environment. Their visible respect for Joe—who has thrived for 90 years in a life that they hope to survive for two weeks—approaches veneration. The Navajo have a title of respect—Hosteen—for their elders. The kids don't know the word but their faces nevertheless reveal their feelings for Hosteen Joe Yazzi.

> Late in the day, Jim Zeller and I return to Joe's spring to replenish the group's drinking water. Our walk of close to a mile through lengthening shadows and the stillness of evening occurs mostly in a silence that is broken only by the soft clatter of our plastic water jugs. Jim's a quiet kid, the sort who never causes problems and always does his job. He has handsome dark features. We sit by the spring on our haunches, waiting for the pencil thin flow of water to fill each of the many jugs. The spring, located at the back of a narrow draw off the main canyon, is now cloaked in darkness as the last of the sunlight works its way up the far cliff face. While we wait, we talk.
>
> Jim points to a small stone formation high on the cliff wall and asks, "What's that?"
>
> "It's an Anasazi granary," I say. I go on to describe how the Ancient Ones would wall off niches in the cliff face with stone, sealing their grain in them against the elements and rodents. "It was one way that they stored the food supply they would need to get through the winter. That advance in their technology helped them to stay put long enough to build their remarkable cliff dwellings. It enabled them to maintain a population greater than the one which now inhabits this whole region. That wall is probably a thousand years old."
>
> The story is finished before I realize that I have just taught a very compact little lesson. Unlike almost all of the thousands of lessons I have taught, I sense that this one may be remembered for a lifetime. I savor the moment. As Jim and I crouch, mesmerized by the steady stream of water filling another battered jug, I think about thanking him for asking me about the granary. But I'd have to go into a protracted explanation of why I was doing so, and I rather hope his thoughts are off somewhere else, with the Anasazi. I avoid looking at him in the fear that a glance may break the spell. Instead I gaze silently at the last sliver of sunlight on the canyon rim high above us, enjoying the coolness of the spring on my sunburned face. The peaceful quiet of the darkening canyon is broken only by the evening call of a songbird and by the steadily rising pitch of the water as another jug is filled.[8]

Outsiders often wonder how graduates of such an unusual school fare in College. About 75 percent of the school's graduates go on to some form of postsecondary education. Over the school's 18 years of existence, graduates have been accepted into 60 different colleges and universities, including several Ivy League schools.[9] Because they are quite experienced at governing their own time, Open High School graduates typically experience few of the adjustment problems that plague most college freshmen.

The Handicap of Bigness

Clearly, big high schools face great impediments in mounting programs like Open High School's. The measures we install in them to maintain control are inimical to programs based on personal responsibility and accountability, on trust and diversity. Our attempts to partition big high schools into houses or even alternative programs have achieved only limited success because the massing of so many teenagers in one place prompts control measures that are antithetical to the kinds of teaching, learning, and programmatic autonomy I have described here. To accomplish its programmatic goals Open High School had to achieve a critical anti-mass. It had to be small enough for control issues to be muted, small enough to trust kids as well as teachers, small enough to embrace *risk* as an inseparable element of personal growth.

On this last point, I was struck from my first hours at Open High School with the unusual manner—unusual for a public high school at any rate—in which it dealt with risk. The staff displayed a trusting reliance in the good judgment of teenagers that, at the time, I found downright scary. Coming to understand the staff's and, to almost as great an extent, the students' clear vision of the important role that risk plays in human growth was a major lesson for me. That most schools run away from risk, equate it with liability, and immediately devalue any enterprise that places students in insecure settings is a measure of how different the Open High School's culture was from most public high schools. The culture of schools has attuned most professionals to respond even to relatively innocent new ideas reflexively, immediately building a list of reasons why the new idea won't work. On more than one occasion, I found myself "falling behind" the staff as it encountered a new idea because I had stopped to begin

building that list while the staff had pushed on to a consideration of how to realize the idea. The power unleashed in a school that seldom asks why it *shouldn't* do something is formidable.

The Financial Feasibility of Very Small High Schools

My descriptions of Open School's program often conjure up images in readers of an elite school full of little rich kids, a private academy masquerading in public school garb. But the school accomplishes this powerful program on the same funding level that is available to Jefferson County's 14 big high schools. Current student/teacher ratios, for example, seem to be quite workable in very small high schools. The key difference is that such schools with their low needs for control, security, and nonteaching specialists can apply more of their resources to instruction. (They seldom *need* even one full-time administrator; principals of these schools become head teachers.)

The student/teacher ratio is a very public statistic that represents a gross measure of the cost of education. School systems tighten their belts by raising the ratio or improve the "quality" of instruction by lowering it. But a perhaps purposely obscure statistic in most districts is what might be termed the student/non-teacher ratio. I recall a conversation many years ago with the principal of a large Wisconsin high school. The conversation turned to this ratio. I asked him to estimate how many people were on the payroll in his school who had never taught a class. After accounting for administrators, secretaries, counselors, security guards, nurses, cafeteria workers, and custodians, the total exceeded 50. In that high school of 1,800 students, the student/non-teacher ratio was about 36 to 1. The average annual salary of those 50 people today would probably approach $25,000, making the overhead costs of personnel alone for that school about $1,250,000 a year—almost $700 per student. What might be added to the education of

the teenagers in that school if even half of those resources could be applied to instruction instead of to the maintenance of the institution? It was just such monies that Open High School used to subsidize its trips. Small, informally organized high schools have support personnel, too, but their structure and culture require far fewer specialists; some of the needs of large institutions (e.g., full-time administrators, disciplinarians, security guards, and even cafeteria workers) simply disappear.[10]

Joe Nathan, one of the organizers of this conference, has described the degree to which overhead costs in the form of specialists can run amuck (1983):

> [I]n Chicago there are big differences among the administrative staffs of the Catholic and public school systems. The Catholic schools, with 250,000 students, employ 35 administrators. The public schools, with 500,000 students, employ 3,500 administrators. One hundred times the number of administrators, for twice as many students. Do the children in the Chicago public schools need all those administrators? (p. 61)

School districts currently employ approximately one administrative staff member for every two-and-a-half teachers.[11] What might happen to American education if even half of public education's overhead costs could be diverted to instruction, to buying more teachers or better teachers or subsidizing trips all over North America? Small high schools cost more money only if one tries to maintain the big-school infrastructure that these schools of critical anti-mass render obsolete. If that infrastructure is dismantled along with big schools more of the education dollar can be directed to what school is supposed to be about: instruction.

Contrasting how these relatively modest expenditures invigorated Open High School's program with the impact that they would have on a big high school reveals an irony. An institution that was nurtured on claims of efficiency requires vast sums of money to make perceptible improvements in it. H. Dean Evans, Superintendent of Instruction for the State of Indiana, for

example, estimated in 1990 that the cost of lowering the class size of every classroom in the state by just *one* student—hardly what could be called a perceptible improvement—was $129,000,000. The estimate suggests that our class-size dilemma will be solved only when every student does not have to be watched over by a teacher every minute of the school day. To accomplish that goal, we must look to low-control models that allow students to learn in the absence of teachers. Current funding levels are quite sufficient to mount exciting programs in such schools.

To the skeptical, I recommend the following exercise designed to break one's thinking free of the typical morass of big bureaucracy school finance: Imagine a school district modelled not on the practices of General Motors but on those of a cottage industry. The average per-pupil expenditure in this country and, incidentally, in Minnesota is now about $5,260 a year.[12] Envision a small, highly autonomous school, given that funding level. If the school has 200 kids, its annual operating budget is about $1,050,000. Return 20 percent of that amount—$210,000—to a trimmed-down central administration for its reduced services and for bus transportation. Imagine a low student/teacher ratio, say 20:1. Pay your ten teachers well, say an average of $45,000 a year (including their fringe benefits). Hire a head teacher and pay him or her $60,000. Find an appropriate building for your program in your community and rent it for $7,000 a month plus another $3,000 for utilities. Hire a secretary, a custodian, and a cleaning person at $20,000 each. Budget $1,000 a year for supplies for each teacher and $3,000 for the central office. Put aside $10,000 to buy books each year and $20,000 for computers and A-V equipment. If the idea of trips is appealing, lease three vans, each at $7,000 a year.

That's probably enough to cover their maintenance, but include another $3,000 just to be sure. Put aside $12,000 to subsidize the fuel costs of trips. Now comes the fun: figuring out what to do with the $70,000 that has yet to be spent.

When I play this little game with people they invariably look for the catch. Like a con game, it's too good to be true. We all know that small schools don't work because they're too expensive. The exercise suggests that the expensive part of a transition to small schools is the cost of maintaining the existing big-school, big-bureaucracy infrastructure while giving small schools their fair share of the resources.

Solving the Problem of Time

The first step in improving the conditions of teaching in a high school is to solve the problem of *time*. Good teaching requires time, time to talk to individual students, time to confer with colleagues, time just to escape the pressures of teaching for a few minutes. Dana Orin, an Open High School teacher, described it as spending "quiet hours with students, learning how they feel about the school." We can gain the time that teachers need to spend with individual kids in two ways. We can buy it by introducing extra personnel into the school, the approach that is used almost exclusively now. It is a major factor in the negotiation of each governing contract between a school board and a local teachers' union. We struggle to provide smaller classes or ways for teachers to work with fewer students or for them to have an extra prep period to plan joint efforts with colleagues. The problem with this approach, as we have already seen, is that it is extremely expensive; a vast amount of money must be spent before truly noticeable change occurs.

The second way to give teachers time to teach is to reconceive the high school in ways that free teachers from their current custodial function. As long as students' time is scheduled tightly to keep them under control, teachers' time must also be scheduled tightly. To free teachers we must free kids. To free kids we must be able to trust them. To trust kids, we must forge personal relationships with them that engender accountability. To foster high levels of personal accountability we must achieve a critical anti-mass in high schools.

Making the Transition

The American public high school is a troubled institution. Assailed on all sides for its growing ineffectiveness, it may already be travelling the road to extinction, a victim of its own unwieldy size. But those willing to acknowledge the mounting evidence remain a disorganized minority. Most school people and the public they serve have unconsciously practiced a polite conspiracy of silence about the ineffectiveness of the high school for so long that the resulting mass delusion has become a formidable obstacle to overcome. One example of this phenomenon will bring dozens more to readers' minds:

I recall the experience of a friend who taught phys ed in a rural Illinois high school. My friend, Ellen, got to know this big kid, a junior, who one day confided to her that he didn't know how to read and there seemed to be no way to get help with his problem. Ellen could scarcely believe him, so she began checking around, finding out how her school dealt with the problem of a high school kid who couldn't read. It turned out that he was right; there was no mechanism for helping him. The mass delusion was that everybody learns to read in elementary school—junior high at the latest—and nobody could even function in a high school without being able to read. Therefore, Ellen's high school needed no program to teach kids to read. She

ended up teaching the kid to read during lunch each day and by the end of the year he was coping nicely with his schoolwork. With Ellen's help, he had solved his problem.

But how can Ellen's school solve its problem when it engages in a deception so pervasive that it can't even recognize that it has a problem? To do so, people must somehow jump out of the elaborate system of fallacy they've constructed for themselves—no easy feat. Douglas Hofstadter (1979) has explained the concept by relating a visit to a computer chess tournament. The contest featured computer programs trying to best each other at chess. One program, the weakest of all, impressed the experts present by quitting lost games long before they were over. Rather than continuing, machine-like, to grind away at a lost cause it would quickly and rather elegantly resign—like a good human player. The American high school hasn't yet been able to acknowledge that the game is lost. It continues to grind away, machine-like, attempting to find a winning combination of moves where none exists.

The high school can learn something about lost causes from the Pony Express, a major reform of the mail delivery service of the 1850s. The Pony Express was the embodiment of a technology—transporting information by horse—that had been advanced to its inherent capacity. Men and horses were pressed to their physical limits to make a familiar concept meet the increased demands of an expanding country. The Pony Express was more than a system of mail delivery; it had a romance about it—a rider and horse at full gallop, hell-bent for the next way-station—that remains frozen like a Remington bronze in our minds. But the Pony Express lasted barely a de ade. It was replaced—almost overnight—by a very different means of delivering information: the telegraph. A message that had taken days of extreme effort to deliver on horseback suddenly could be delivered in seconds, literally with the flick of a finger.

As those who frame educational policy attempt to meet the needs of a changing society they might be advised to consider the Pony Express. Almost all of the current effort to reform the high school is being expended in attempts to improve the current technology. It is a quest for faster horses. It is what is known as a "first-order" exercise in reforming an institution rather than a "second order" exercise in transforming it (Cuban, 1984; Deal, 1990). That we should cling to a familiar idea is understandable; the high school as we have known it is deeply embedded in our social fabric. The Friday night game, the Prom, the impressive buildings are compelling cultural icons that bind whole communities together. They distract our attention as we attempt to consider the high school as a place of learning. But if we think of the comprehensive high school as a technology pushed to its inherent limits, the current debate—especially all the pointing of fingers at "ill-prepared" teachers and "aimless" students—takes on new meaning. Current pronouncements and fact-finding reports begin to sound too much like calls for more way stations so that the horses will be fresher and faster.

The debate has prompted me to jump out of the system, to seek a solution so different from current practice that it might well be termed a new technology. Many refer to it today as the paradigm shift. It is a shift that schools like Open High School have already accomplished. More accurately, these schools were conceived from their beginnings as paradigm institutions.

- These schools have distinct identities. The rules and the values that underlie them have been shaped by the members of their school communities. They attract new members to the community—both students and teachers—by emphasizing their uniqueness.

- Although they still reside inside school districts with comparatively rigid, multi-layered hierarchies, their internal organizational structures are very flat. Open High School, for example, referred to all who worked in the school, from the principal to teacher's aides, as staff members in order to mute the traditional professional pecking order.

- They tend to be working democracies with regularly scheduled "town meetings" that operate on the principle of one person, one vote. Still, school boards, wary of tu. .ing so much control over to students, sometimes require that the head teacher hav' eto power over all decisions made by the school community, an intervention that oft. >es unused.

- Their programs are oriented toward individual learning rather than group teaching. They tend to be tailored to individual needs and interests. Pressures to conform disappear with the need to control.[13]

Some practitioners already understand the paradigm shift, feel relatively comfortable with it, and are doing their best to embrace it. Most of us, however, find it an intellectually interesting but highly impractical concept. We must, through policy formation and perhaps even the enactment of laws, build a tolerance of new paradigm efforts in the public sector. And we must give these schools their *fair* share of the resources. Much of that money is out-of-reach, hopelessly entangled in the elaborate web of policies and statutes that govern school funding in our states. That structure cannot simply be dismantled. But states can take steps gradually to introduce a second funding structure specifically designed for these new schools.

The very survival of the *public* high school may require a structure that enables and a political climate that allows us to create new schools. The disbelievers must allow the believers to make such schools available to those who are ready for them. No one else need attend these new schools for them to fulfill their role in the evolution of school restructuring. We desperately need models—workable prototypes that abandon the industrial model of schooling that has brought us schools that are bereft of personal relationships and enamored with bigness. Some school districts and even some whole states, such as Minnesota, have enacted school choice plans that lay the groundwork for the sort of tolerance that is needed. The new schools can serve as navigation lights pointing the way for the rest of us, if we are ready to risk the

journey. The smaller, more personal schools that may develop in the coming years will not all be alike. Open High School is just one of many different ways to reconceive the public high school. What other wonderful surprises await us once teachers working in small groups are set free to dream of different kinds of schools?

Endnotes

1. The source of this information is unclear: the two lists were apparently compiled by Fullerton's Police Department and the California Department of Education.

2. Children also mature physically at an earlier age than they did when the high school was conceived. The average age of the onset of puberty has been descending about one year in each recent generation.

3. I reluctantly resort to coining a term, particularly one stated in the negative. I even went as far as to call upon physicist friends for examples of such a phenomenon in the physical world, hoping that a ready-made analogy existed. The process of fusion—the opposite of fission, from which the concept of critical mass is derived—comes close. For fusion to occur, as I understand it, very small nuclei must be assembled, releasing large amounts of energy in the process. The analogy seems apt in that the energy (and enthusiasm) generated in small, personalized schools produces additional strong interactions among teachers and students, which, in turn, create yet more energy and enthusiasm.

4. At the time of my stay, the school was located in Evergreen, Colorado, and was called the Jefferson County Open High School. Known informally as Mountain Open, the school merged in 1989 with Tanglewood, a philosophically similar preschool through ninth grade elementary/middle school that was also a part of the Jefferson County School District. Both schools moved into a former junior high school building in Lakewood to become one preschool through twelfth grade school named the Jefferson County Open School. I describe in detail how Open High School functioned in my forthcoming book, *A Real Logical Way* (in press).

5. The school currently has a waiting list of approximately 1,000 students for all grades.

6. The 24 Graduation Expectations covered three areas of effort—what the staff called domains. The *personal domain* included expectations such as meeting one's commitments to self and to others and being willing to take risks and accept challenges. The *social domain* encompassed expectations such as being able to confront others constructively and work effectively in small groups. The *intellectual domain* contained the familiar communication skills and the traditional content areas such as science and math, but also included the cultivation of a sense of humor.

7. See Gregory (1991) for a detailed description of how Passages worked at Open High School.

8. Adapted from my forthcoming book about the school (Gregory, in press).

9. This figure was obtained from a current list provided by the school.

10. The transformations that occur in most "disruptive" youth upon entering a small, informally-structured alternative school are well documented. Jerry Smith's and my repeated observation of these individual success stories finally led us to label big high schools as provocateurs of violence (Gregory & Smith, 1987). In 1975, this body of evidence led a Senate subcommittee on crime and violence in the schools to recommend the development of many more such schools to solve the problem (Committee of the Judiciary, 1975). Indeed, the successes of these schools with these students have influenced the definition of "alternative school" over the years until now, in many states, it has come to mean a school *for* tough-to-teach kids.

11. Unpublished data from the U.S. Department of Labor's "Current Population Survey, 1986-87." Cited by Darling-Hammond (1990).

12. The figure seems high but it encompasses all costs, including buildings, which are not typically part of such estimates. According to statistics compiled by the National Education Association (1991, p. 59) the 1990-1991 average of the state averages was $5,261. New Jersey at $9,159 had the highest average of the states. The lowest was Utah with $2,993. Minnesota's average expenditure was $5,260.

13. See, for example, Peters's *Thriving on Chaos* (1987), Kearns and Doyle's *Winning the Brain Race* (1988), Goodlad's *A Place Called School* (1984), and Gregory and Smith's *High Schools as Communities* (1987). See Burrello & Gregory (n.d.) for a more complete set of contrasts between new paradigm and old paradigm schools.

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